

Optimization of extraction conditions of plant polyphenols from wheat sprout, blueberry, and black chokeberry by response surface methodology(RSM)

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Response surface methodology were applied for monitor the yields of polyphenols from wheat sprout(*Triticum aestivum* L.), blueberry(*Vaccinium* spp.), and black chokeberry (*Aronia melanocarpa*) under different extraction conditions. The maximum yield were 26.50%, 98.40%, 70.00%, respectively at 100 mg/ml of sample concentration to solvent ratio, 50 °C extraction temperature and 15 hr extraction time. The maximum total phenolics were 1.932 mg/g , 1.857 mg/g, 1.875 mg/g gallic acid equivalent and 2.110 mg/g, 2.055 mg/g, 2.104 mg/g quercetin equivalent. The maximum DPPH radical scavenging activity were 85.30%, 64.78%, 63.14%, respectively. The maximum ABTS radical scavenging activity were 97.38%, 98.02%, 95.77%, respectively. The optimum ranges of extraction conditions were as follows: ethanol concentration of 70~80%, extraction time of 12~15 hr, and extraction temperature of 40~50°C.